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ABSTRACT

In an effort to make instruction more responsive to student priorities, rather than institutional or general objectives, a study was undertaken to identify those priorities. Specifically, it looked for the qualities of instruction that medical and pharmacy students consider most important in their learning. A list of 39 instructional characteristics was developed and divided randomly into two lists, which were then distributed randomly to incoming students of the 1983 class at the University of Arizona College of Medicine and the senior class of the College of Pharmacy, for ranking. Responses were received from 145 students. Analysis of the survey responses shows no significant difference in attitudes in the two schools, although medical student responses were in general more homogeneous and a few salient instructional qualities were ranked very differently by the two groups. Like groups previously surveyed, these students consider clarity and organization of content and presentation to be of great importance; unlike other groups they consider instructor knowledge of lesser importance. It is suggested that this may be due to the survey instrument or to the substantial non-teacher information resources available to these professional students. Further research on this and related issues is recommended. (MSE)

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THE IMPORTANCE OF CERTAIN INSTRUCTIONAL QUALITIES TO STUDENT LEARNING IN THE PROFESSIONS

by

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Abstract

College and graduate students are frequently called upon to evaluate their courses and instructors. The evaluation instruments are derived from general principles of learning, instructional guidelines, or teaching heurlistics. The ratings are made by students within a framework of priorities regarding certain qualities of the instruction they received. Instructional evaluation has not always been closely responsive to such student priorities. The first step in a better response is to identify such student priorities.

This brief study sought to identify those qualities which medical and pharmacy students consider to be most important to their learning. A survey methodology involving student ratings of 39 instructional qualities was used. The results, quite consistent across student groups, clearly identified three qualities as most essential to their learning.

College, graduate and professional students are frequently called upon to evaluate their courses and instructors. This practice is intended to yield information useful in monitoring instructional quality, documenting teaching contribution, and providing suggestions for instructional improvement. The evaluation instruments used are usually comprised of a general set of teaching heuristics, principles of learning, or instructional guidelines thought to affect learning combined with some type of rating scale.

The items common to instructional evaluation instruments, whether derived intuitively or empirically, have as their base some model, or schema of effective instruction. Feldman (1976) in his synthesis and meta-analysis of some 70 studies of teaching qualities reports many studies which describe a "good teacher" or which identify behaviors thought to discriminate between the best and the worst instructors.

Irby (1978 a & b) has delineated four dimensions or qualities which appear regularly in studies as being highly related to effective classroom teaching and which also seem to be related to effective clinical teaching. These include: (1) organization/clarity; (2) enthusiasm/stimulation; (3) instructor knowledge; and (4) group instructional skill. In his proposed self-assessment inventory for clinical and classroom teachers in medicine he has added the dimensions of (5) rapport; (6) clinical supervision; (7) clinical competence; and (8) professional characteristics (1978 a). The first five characteristics generally correspond to the dimensions which Feldman examined, although they are broader categories than Feldman's. The practice of students rating instruction rests upon the assumption that students have formulated a structure or set of criteria which define effective instruction for them.

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An assumption in many professional schools is that instruction evaluation instruments derived for use in higher education in general will have direct application to the evaluation of instruction in the professions. In exploring this assumption this study sought to identify the qualities of instruction considered by medical and pharmacy students to be important to their learning. It was expected that a subset of essential qualities would emerge from the more important qualities identified and that the composition of the subset would be consistent across student populations. The existence of such a subset would support the assumption that students do have a schema for qualities of instruction which they consider essential to learning.

Method.

A questionnaire consisting of 39 items, derived to be consistant with Irby's and Feldman's dimensions, was randomly divided into two scales (A and B) of 20 items and 19 items respectively in order to reduce the time required to complete the form. The scales were then randomly distributed to all members of the incoming class of 1983 of the University of Arizona College of Medicine and the senior class of the College of Pharmacy during their first week in session. A total of 92 responses were obtained from medicine and 53 from pharmacy, approximately equally divided between scales.

The questionnaire was of a 3-point structured-response design on which the respondent identified each behavior or quality listed as being "Essential", "Desirable", or "Of Little or No Importance" to his/her learning. In analyzing the data a numerical value was assigned to each of the three classifications with Essential receiving a value of 3, Desirable a 2, and Of Little Importance a 1. The mean and standard deviation for each item were obtained. Discriminant analysis was used to see if there was a statistically significant difference between the medical and pharmacy students' responses. Spearman Rank-Order Correlation (rho) was used to determine whether and to what degree the rankings by the two groups were related.

Results

Items appeared to cluster roughly into four groups. The item clusters at the extreme ends of the range of means were clearly separated from the two large middle clusters. That is, both groups of students seemed to consider three items essential, and both groups had considerable concensus on these items (means ranged between 2.74 and 2.88 with standard deviations ranging between .32 and .45). These items were: clearly communicates what is expected to be learned, answers students' questions carefully and precisely, and emphasizes what is important. These represented Irby's qualities of organization/clarity and instructional skill.

The second clustering of responses (see attached list of items rank ordered) had a broader range for both means (2.25 to 2.62) and standard deviations (.45 to .65). Among the top 13 items are represented four of the five dimensions Irby denotes as being important on a general level to most students. Of the top 13 items listed, 9 are common to both student populations. The items in addition to those already identified were: relates facts to form concepts, tests the important course material, corrects student mistakes without belittling them, reviews essential material, paces presentation to student rate of comprehension, and assigns grades fairly. The top twelve ranked items do not include several qualities ranked highly in the studies reported by Feldman. Though low in this study's rankings, qualities like instructor preparedness, instructor ability to stimulate interest, and instructor knowledge of the subject ranked third, fourth, and fifth in Feldmans' results.

Discriminant analysis showed no significant difference between the medical and pharmacy student responses. The medical student population appeared to be a bit more homogeneous (SD range .363 - .705) than the pharmacy student population (.320 - .774) in their responses. Spearman rho yielded a significant correlation of .81, $p < .01$ between the rankings of the medical and pharmacy students.

The following items were ranked high by medical students and low by pharmacy students:

Med Rank 3 Relates new material to previous learning Pharm Rank 19

Med Rank 4 Shows enthusiasm about the subject Pharm Rank 23

Med Rank 7 Discusses points of view other than his/her own Pharm Rank 28

Five of the six items with the lowest ranking were identical. The qualities of encouraging active participation in discussion, utilizing audio visual resources effectively, directing students to useful literature, bring self critical, and not appearing arrogant received the lowest ratings.

Discussion and Conclusion

The results obtained in this study seem to support the expectation that professional (at least medical and pharmacy) students do have a schema for qualities of instruction which are important to learning. Whether they use this schema when actually evaluating instruction is a subject for another study. The components of this schema are still not fully nor definitively delineated, nor has the question of whether professional students comprise a population unique from any other group of students been answered. It does appear that these student groups consider clarity and organization both of content and presentation to be of high importance. In this they are much like other college students who have been studied. The students in this study differed from other students, however, in ranking instructor knowledge as being of much less importance. It may be that this is a result of the instrument used. Since there were as many items from this dimension as from the dimensions of clarity or enthusiasm, the first explanation seems less likely than that medical students assume that their faculty is knowledgeable. They may further assume that there are ample resources available for obtaining factual information other than their instructor. It will be interesting to see if this ranking will change as students move into their clinical training.

There seem to be more questions raised by this study than were answered. For example: Would other student populations rank the importance of qualities in a different way than do these students? Is there less variance among medical and pharmacy students than among law students or educational psychology graduate students? Are the qualities freshman students deem essential

different from those essential to seniors? Do students and faculty agree on the essential qualities of good instruction? Do students rate instruction according to their schema for "good teaching"? Further research into these questions is currently being conducted. We may tentatively conclude from this study that medical and pharmacy students consider clearly defined expectations of student learning, careful answering of students' questions and emphasis of important concepts are essential insturctor behaviors for effective learning.

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Rank Ordering of Instruction Qualities

Medical Students					Pharmacy Students		
Rank	Mean	SD	Item #		Rank	Mean	SD
1.	2.848	.363	22	Clearly communicates what is expected to be learned	1	2.889	.320
2.	2.761	.431	7	Answers student questions carefully and precisely	3	2.731	.452
3.	2.739	.444	11	Emphasizes what is important	2	2.846	.368
4.	2.587	.541	17	Relates new material to previous learnings	19.5	2.346	.485
5.5	2.565	.501	21	Shows enthusiasm about the subject	24	2.259	.447
5.5	2.565	.544	24	Tests the important course material	5	2.593	.501
7.	2.543	.546	29	Relates facts to form concepts	12.5	2.481	.509
10.	2.522	.505	14	Discusses points of view other than his/her own	28	2.115	.653
10.	2.522	.505	3	Corrects student mistakes without belittling them	10.5	2.500	.510
10.	2.522	.547	12	Reviews essential material	4	2.615	.496
10.	2.522	.547	38	Paces presentation to student rate of comprehension	8	2.556	.577
10.	2.522	.547	36	Assigns grades fairly	6.5	2.577	.578
13.	2.457	.585	6	Gears instruction to student's level of readiness	6.5	2.577	.643
15.	2.435	.544	32	Willingly remains accessible to students	22	2.296	.609
15.	2.435	.544	37	Summarizes major points	12.5	2.481	.580
15.	2.435	.620	34	Clarifies confusing examination questons	9	2.519	.509
17.5	2.413	.541	28	Willingly explains further	16.5	2.407	.501
17.5	2.413	.541	1	Seems to enjoy teaching	15	2.423	.504
19.	2.391	.537	26	Stimulates student interest in the subject	21	2.296	.465
20.5	2.348	.482	8	Is open-minded	10.5	2.500	.510
20.5	2.348	.526	23	Quickly grasps what students are asking telling	29	2.111	.506

Medical Students					Pharmacy Students		
Rank	Mean	SD	Item #		Rank	Mean	SD
22.5	2.326	.560	39	Encourages a climate of mutual respect	24	2.259	.447
22.5	2.326	.519	2	Listens attentively	14	2.462	.508
24.5	2.239	.565	35	Has an interesting style of presentation	33	2.000	.480
24.5	2.239	.705	16	Takes responsibility for own actions	19.5	2.346	.689
26.	2.196	.582	33	Reveals knowledge in his/her discipline	16.5	2.407	.572
27.	2.174	.529	15	Provides support and encouragement to students	18	2.385	.496
28.5	2.152	.556	13	Questions students to elicit underlying reasoning	36	1.885	.516
28.5	2.152	.595	20	Discusses current developments in his/her specialty	31	2.038	.774
30.	2.087	.590	10	Shows personal interest in students	26.5	2.231	.514
31.	2.043	.556	5	Giving students positive reinforcement for good contributions in performance	26.5	2.231	.587
32.	2.022	.577	27	Recognizes own limitations	24	2.259	.656
33.5	1.978	.577	25	Seems to have self confidence	32	2.037	.587
33.5	1.978	.683	12	Uses class handouts effectively	30	2.077	.744
35.	1.957	.556	31	Encourages active participation in discussion	39	1.815	.622
36.	1.935	.574	19	Utilizes audio visual resources effectively	34.5	1.962	.662
37.5	1.804	.500	30	Directs students to useful literature in the field	37	1.852	.362
37.5	1.804	.619	4	Is self critical	38	1.846	.732
37.5	1.761	.639	9	Does not appear to be arrogant	34.5	1.962	.720

Name _____

INSTRUCTIONAL QUALITIES SCALE-A

This instrument is intended to collect your individual ratings of various instructional qualities which, based on past experience, make a significant contribution to your learning.

The method used here required that you determine the importance of each instructional quality in relation to the other qualities listed. This means that some of the qualities you select as more important than others may be only slightly more important.

Please rate the importance, to you in your learning, of each quality listed. Using the scale provided below assign a rating letter to each item.

E = a quality which is ESSENTIAL to me in my learning
D = a quality which is generally DESIRABLE to me in my learning
L = a quality which is of LITTLE or no importance to me in my learning

1. _____ Seems to enjoy teaching
2. _____ Listens attentively
3. _____ Corrects student mistakes without belittling them
4. _____ Is self critical
5. _____ Giving students positive reinforcement for good contributions in performance
6. _____ Gears instruction to student's level of readiness
7. _____ Answers student questions carefully and precisely
8. _____ Is open-minded
9. _____ Does not appear to be arrogant
10. _____ Shows personal interest in students
11. _____ Emphasizes what is important
12. _____ Uses class handouts effectively
13. _____ Questions students to elicit underlying reasoning
14. _____ Discusses points of view other than his/her own
15. _____ Provides support and encouragement to students
16. _____ Takes responsibility for own actions
17. _____ Relates new material to previous learnings
18. _____ Reviews essential material
19. _____ Utilizes audio visual resources effectively
20. _____ Discusses current developments in his/her specialty

Name _____

INSTRUCTIONAL QUALITIES SCALE-B

This instrument is intended to collect your individual ratings of various instructional qualities which, based on past experience, make a significant contribution to your learning.

The method used here required that you determine the importance of each instructional quality in relation to the other qualities listed. This means that some of the qualities you select as more important than others may be only slightly more important.

Please rate the importance, to you in your learning, of each quality listed. Using the scale provided below assign a rating letter to each item.

E = quality which is ESSENTIAL to me in my learning
D = a quality which is generally DESIRABLE to me in my learning
L = a quality which is of LITTLE or no importance to me in my learning

21. _____ Shows enthusiasm about the subject
22. _____ Clearly communicates what is expected to be learned
23. _____ Quickly grasps what students are asking or telling
24. _____ Tests the important course material
25. _____ Seems to have self confidence
26. _____ Stimulates student interest in the subject
27. _____ Recognizes own limitations
28. _____ Willingly explains further
29. _____ Relates facts to form concepts
30. _____ Directs students to useful literature in the field
31. _____ Encourages active participation in discussion
32. _____ Willingly remains accessible to students
33. _____ Reveals knowledge in his/her discipline
34. _____ Clarifies confusing examination questions
35. _____ Has an interesting style of presentation
36. _____ Assigns grades fairly
37. _____ Summarizes major points
38. _____ Paces presentation to student rate of comprehension
39. _____ Encourages a climate of mutual respect